



Rocky Flats Environmental Technology Site

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

BUILDING 560
(The Old Building 559 Cooling Tower)

559 CLOSURE PROJECT

REVISION 0

October 11, 2001



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RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

BUILDING 560
(The Old Building 559 Cooling Tower)

559 CLOSURE PROJECT

REVISION 0

October 11, 2001

Reviewed by:


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Date 10/22/01

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Am	Americium
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	Chain of custody
DCGL _{EMC}	Derived Concentration Guideline Level – elevated measurement comparison
DCGL _w	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U S Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U S Environmental Protection Agency
K-H	Kaiser-Hill
LBP	Lead-based paint
LCS	Laboratory control sample
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDL	Minimum detectable limit
MS	Matrix spike
MSD	Matrix spike duplicate
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated Biphenyls
PDS	Pre-Demolition Survey
PDSP	Pre-Demolition survey Plan
Pu	Plutonium
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TSA	Total surface activity
U	Uranium
V&V	Verification and validation
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to enable facility "Typing" per the Kaiser-Hill Decommissioning Program Plan (DPP, 10/8/98) and compliant disposition and waste management of Building 560. Because this cooling tower was anticipated to be a Type 1 facility, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Accessible, exterior facility surfaces were characterized in this RLC. Due to the inaccessibility of the interior surfaces of B560, additional radiological measurements will be obtained during the demolition phase using the Waste Release Evaluation process. Environmental media beneath and surrounding the facilities were not within the scope of this RLC Report (RLCR) and will be addressed using the Soil Disturbance Permit process, in compliance with Rocky Flats Cleanup Agreement (RFCA).

The RLC encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

Results indicate that no radiological contamination exists in excess of the prescribed release limits of DOE Order 5400.5. Asbestos is contained in fiberboard and thermal system insulation. Asbestos containing materials will be removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. Painted facility surfaces may contain PCBs and lead. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal* as applicable.

Based upon this RLCR and subject to concurrence by the Colorado Department of Public Health and Environment (CDPHE), B560 is considered to be a Type 1 facility. To ensure that the facilities remain free of contamination and that RLC data remain valid, isolation controls will be established, and the facilities will be posted accordingly.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of B560. Because this cooling tower was anticipated to be Type 1 facility, a Pre-Demolition Survey (PDS) characterization was performed. Accessible, exterior facility surfaces were characterized in this RLC. Environmental media beneath and surrounding the facility were not within the scope of this RLC Report (RLCR) and will be addressed using the Soil Disturbance Permit process, in compliance with Rocky Flats Cleanup Agreement (RFCA).

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these is B560. The location of this facility is shown in Attachment A. This facility no longer supports the RFETS mission and needs to be removed to reduce Site infrastructure, risks and/or operating costs.

Before the facility can be removed, a PDS must be conducted; this document presents the PDS results. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. PDSs are performed before building demolition to define the final radiological and chemical conditions of a facility. Final conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the final radiological and chemical conditions of B560. Due to the inaccessibility of the interior surfaces of B560, additional radiological measurements will be obtained during the demolition phase using the Waste Release Evaluation process. Environmental media beneath and surrounding the facility is not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process. Both the facility and environmental media will be dispositioned pursuant to the Rocky Flats Cleanup Agreement (RFCA).

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this RLC were the same DQOs identified in the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to Section 2.0 of MAN-127-PDSP for these DQOs.

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2 HISTORICAL SITE ASSESSMENT

A facility-specific Historical Site Assessment (HSA) was conducted to understand the facility history and related hazards. The assessment consisted of facility walk-downs, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. Results of the facility-specific HSA was documented in a facility-specific Historical Site Assessment Report (HSAR). Refer to Attachment B, Historical Site Assessment Report, for a copy of the B560 HSAR. In summary, the HSAR did not identify any known radiological or chemical hazards. Some asbestos containing material was used during construction of the facility.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

3.1 Radiological Characterization

Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the accessible, exterior surfaces of B560. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, a characterization package was developed during the planning phase that describes the minimum survey requirements (refer to Attachment C). Due to the inaccessibility of the interior surfaces of B560, 15 additional biased TSA and smear measurements will be obtained during the demolition phase using the Waste Release Evaluation process.

A radiological survey unit package was developed for the survey unit (i.e., 560-A-001) in accordance with Radiological Safety Practices (RSP) 16 01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total Surface Activity (TSA), removable, and scan measurements were collected in accordance with RSP 16 02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16 04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16 05, *Radiological Survey/Sample Quality Control*.

Radiological survey data, statistical analysis results, and survey locations are presented in Attachment D, Radiological Data Summary and Survey Maps. The radiological survey unit package, 560-A-001, is maintained in the RISS Characterization Project files.

3.2 Radiological Hazards Summary

Fifteen (15) TSA measurements, fifteen (15) RSA measurements, and 5% scan surveys were performed on this structure. Due to the inaccessibility of the interior surfaces of B560, 15 additional biased TSA and smear measurements will be obtained during the demolition phase using the Waste Release Evaluation process. Two of the initial fifteen TSA measurements indicated elevated total surface activity above the DCGL_w values. Two investigations were performed that included a total of sixteen additional total surface

measurements taken within one m² of each elevated location to calculate a square meter average. The two investigations indicated that the average activities were less than 100 dpm/100cm². In addition, all of the total surface activity measurements were below 300 dpm/100cm². Therefore, the PDS confirmed that B560 does not contain radiological contamination above the surface contamination guidelines provided in RFETS Pre-Demolition Survey Plan for D&D Facilities. Isolation control postings will be displayed on the structure to ensure no radioactive materials are introduced.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

4.1 Chemical Characterization

Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on or in B560. Based upon historical and process knowledge, visual inspections, and PDSP DQOs, characterization needs were determined. A Chemical Characterization Plan was developed during the planning phase that describes sampling requirements and the justification for the sample locations and estimated sample numbers (refer to Attachment C). Refer to Attachment E, Chemical Summary Data, for details on sample results and sample locations.

4.1.1 Asbestos

An asbestos inspection of the 560 Cooling Tower was performed by a CDPHE-certified asbestos inspector. Suspect materials were identified and sampled. The results of the characterization are discussed in Section 4.2.1 and provided in the Attachment E.

4.1.2 Beryllium (Be)

Based on process knowledge and personnel interviews, there is no reasonable likelihood for Be to be present. Therefore, no Be sampling and analysis was conducted.

4.1.3 RCRA/CERCLA Constituents [including metals and volatile and semi-volatile organic compounds (VOCs & SVOCs)]

Based on process knowledge and personnel interviews, there is no reasonable likelihood for RCRA/CERCLA constituents to have contaminated B560. Also, Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal. Therefore, no sampling for RCRA/CERCLA constituents was needed or conducted.

4.1.4 Polychlorinated Biphenyls (PCBs)

Based on process knowledge and personnel interviews, no PCB-containing equipment was used in the cooling tower operations, therefore, no PCB spills occurred within the structure. Sampling and analysis for PCB contamination, therefore, was not conducted.

Due to the age of the structure, painted surfaces on B560 are assumed to contain PCBs. Environmental Waste Compliance Guidance #25, *Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition*, states that applied dried paints, varnishes, waxes, or other similar coatings or sealants are acceptable for disposal (with notification) in a non-hazardous solid waste landfill as PCB Bulk Product Waste under 40 CFR 761.3 and 40 CFR 761.62 paragraph (b), and therefore, need not be sampled as long as restrictions outlined in 40 CFR 761.62 regarding their disposition are met. Current plans are to dispose of the painted B560 demolition debris in an off-site, non-hazardous solid waste landfill as PCB Bulk Product Waste. Contrary to the Chemical Characterization Plan, B560 non-painted surfaces will be disposed of as non-hazardous demolition debris.

4.2 Chemical Hazards Summary

4.2.1 Asbestos

The 560 Cooling Tower is constructed with asbestos fiberboard outer walls. Asbestos containing insulation also exists on the piping associated with the cooling tower pumps and process lines. However, not all of the piping associated with the cooling tower has asbestos containing thermal insulation. The specific locations of the asbestos containing materials can be found in Attachment E, Chemical Data Summary. This material will be removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations.

4.2.2 Beryllium

Based on process knowledge and personnel interviews, there is no reasonable likelihood for Be to be present.

4.2.3 RCRA/CERCLA Constituents

Based on process knowledge and personnel interviews, there are no hazards associated with historical spills/releases of RCRA/CERCLA constituents.

4.2.4 PCBs

Based on process knowledge and personnel interviews, there are no hazards associated with any historical PCB spills/releases. However, due to the age of the structure, plans are to dispose of painted demolition debris in an off-site, non-hazardous solid waste landfill as PCB Bulk Product Waste. Contrary to the Chemical Characterization Plan, B560 non-painted surfaces will be disposed of as non-hazardous demolition debris.

5 PHYSICAL HAZARDS

Physical hazards associated with B560 consist of those common to standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. In addition, the facility has deteriorated over time and is in poor condition. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of B560, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments D and E) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

Adequate data quality for decision-making is required by the Kaiser-Hill Team Quality Assurance Program (K-H, 1997, §7.1.4 and 7.2.2), the DOE (Order O 414.1A, Quality Assurance, §4 b (2)(b)), and the Regulators (EPA Region VIII and the CDPHE). The data and consequent environmental decisions must be technically and legally defensible. Verification and validation (V&V) of the data, in concert with the DQO process, ensure that data used in decisions resulting from the PDS are usable and defensible.

V&V of the data are the primary components of the DQA, and are detailed in the B560 Characterization Project files under the file header "DQA". A summary of the decisions and uncertainties resulting from the DQO process specific to this project are displayed in Attachment F, Table F-3. DQA for radiological data drew heavily from guidance provided in the MARSSIM (NUREG-1575) and Radiological Safety Practices (RSPs) 16.04 and 16.05. V&V of non-radiological data drew from a number of requirements and guidance documents, including EPA QA/G-4 (EPA, 1994) and QA/G-9 (EPA, 1998). Other applicable guidance and requirements documents are referenced within the B560 Characterization Project files.

In summary, the V&V process corroborates that the following elements of the characterization process are adequate:

- ◆ the *number* of samples and surveys,
- ◆ the *types* of samples and surveys,
- ◆ the sampling/survey process, in the field, and,
- ◆ the laboratory analytical process, relative to accuracy and precision considerations

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition of B560 will generate a variety of wastes, as shown below

Waste Volume Estimates and Material Types							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste
Building 560	325	150	80	0	0	150	PCB Bulk Product Waste – to be determined based on selected disposition option

The asbestos containing material will be managed pursuant to Site asbestos and PCB abatement and waste management procedures. All other wastes will be managed as sanitary waste.

8 FACILITY CLASSIFICATION AND CONCLUSIONS

The RLC of B560 was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. B560 does not contain any radiological hazard. However, asbestos is contained in some of the thermal system insulation, and PCBs and metals may be present in paints. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), as applicable, in accordance with the Decommissioning Program Plan, Section 3.3.5. Asbestos containing material will be removed and disposed of in compliance with EPA and CDPHE regulations. To ensure that B560 remains free of contamination and that PDS data remain valid, isolation controls will be established, and the facility will be posted accordingly.

9 REFERENCES

ANSI-N323A-1997, *Radiation Protection Instrumentation Test and Calibration*

DOE/RFFO, CDPHE, EPA, 1996 Rocky Flats Cleanup Agreement (RFCA), July 19, 1996

DOE Order 5400 5, "Radiation Protection of the Public and the Environment "

DOE Order 414 1A, "Quality Assurance "

EPA, 1994 "The Data Quality Objective Process," EPA QA/G-4

K-H, 1999 Decommissioning Program Plan, June 21, 1999

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev 0, November 15, 2000

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev 1, September 1999

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev 3, April 23, 2001

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev 0, April 23, 2001

MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual, December 1997 (NUREG-1575, EPA 402-R-97-016)

PRO-475-RSP-16 01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev 1, May 22, 2001

PRO-476-RSP-16 02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev 1, May 22, 2001

PRO-477-RSP-16 03, *Radiological Samples of Building Media*, Rev 1, May 22, 2001

PRO-478-RSP-16 04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev 1, May 22, 2001

PRO-479-RSP-16 05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev 1, May 22, 2001

PRO-563-ACPR, Asbestos Characterization Procedure, Revision 0, August 24, 1999

PRO-536-BCPR, Beryllium Characterization Procedure, Revision 0, August 24, 1999

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal

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ATTACHMENT A

Facility Location Map

Building 560

Cooling Tower

EXPLANATION

-  Building 560
- Standard Map Features**
 -  Buildings and other structures
 -  Solar Evaporation Ponds (SEPs)
 -  Lakes and ponds
 -  Streams, ditches or other drainage features
 -  Fences and other barriers
 -  Topographic Contour (20 Foot)
 -  Paved roads
 -  Dirt roads

DATA SOURCE BASE FEATURES:
 Buildings, roads, and other features were digitized from the 1992 aerial photograph. The data was acquired by E&G RLI, Inc. from the original photograph. The data was then processed by E&G RLI, Inc. to create the final map. The data was then processed by E&G RLI, Inc. to create the final map. The data was then processed by E&G RLI, Inc. to create the final map.



Scale = 1:12340
 1 inch represents approximately 1112 feet



State Plane Coordinate Projection
 Colorado Zone
 Datum: NAD27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

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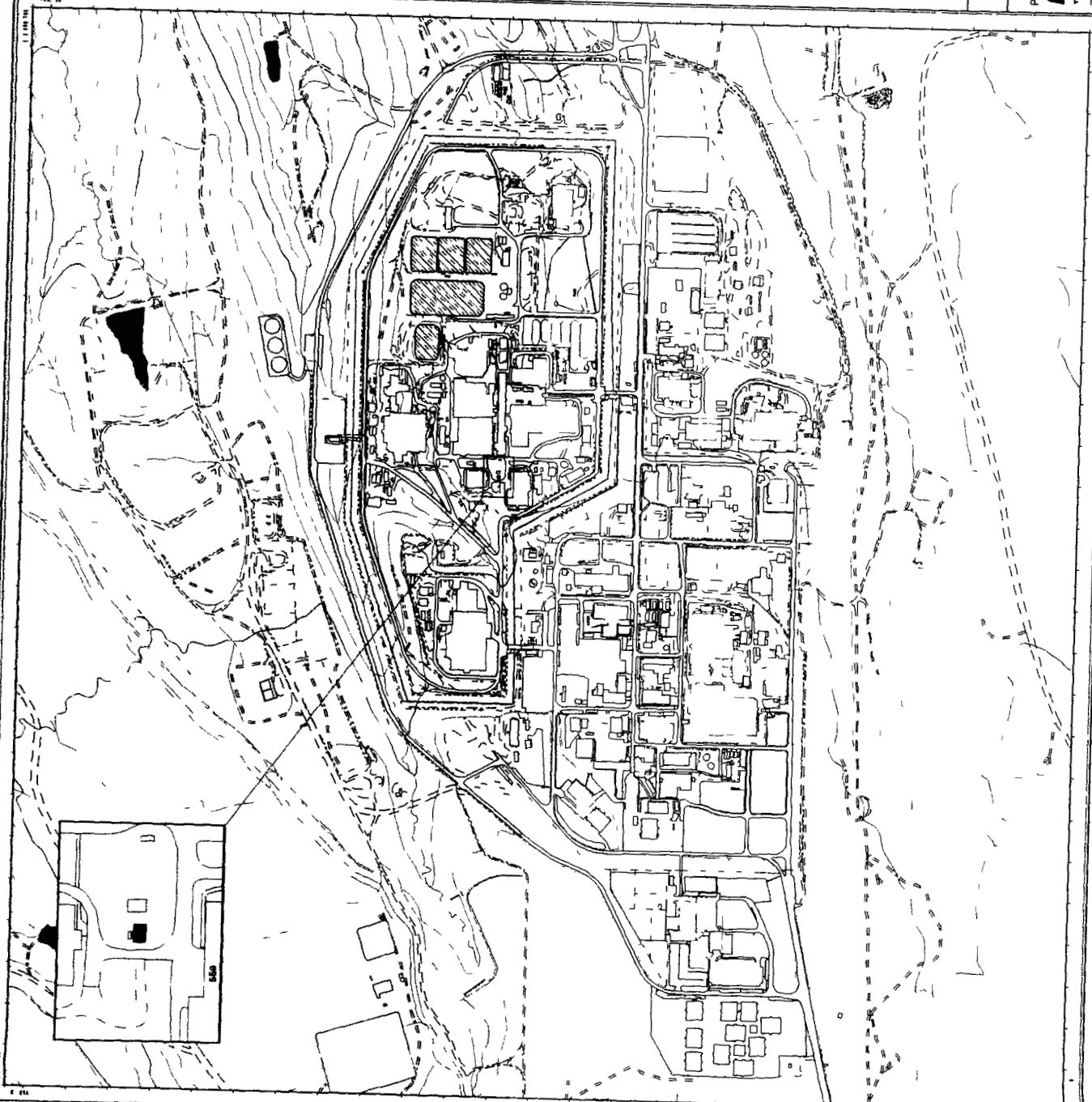
Prepared for



MAP ID: 02 0024

October 15, 2001

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ATTACHMENT B

Historical Site Assessment

D&D RISS Facility Characterization Historical Site Assessment Report

Facility ID Buildings 560 Cooling Tower

Anticipated Facility Type (1, 2, or 3) Building 560 is an anticipated Type 1 Facility

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with
D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and
Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Building 560 is the west cooling tower located north of Building 559. This cooling tower was constructed in 1967 and deactivated in approximately 1990. This structure measures approximately 18-feet wide by 26-feet long by 15-feet high, and was built on an 8-inch thick concrete slab poured on grade. The slab has an 18-inch high containment wall around its perimeter, which acts as the tower spray-water catch basin. The cooling tower is constructed with a wood internal frame and asbestos fiberboard outer walls. The top of the cooling tower has a wood handrail around its perimeter with access to the roof provided by a metal ladder located on the south side of the tower. The tower also has a 12-foot-diameter, potentially asbestos, circular exhaust port in the center of the roof. The construction of the internal dispersion panels could not be determined from this limited-access inspection.

The cooling tower has been disconnected from the plant water system, and the electrical connection has been "lock and tagged out". This cooling tower has no fire protection system. The cooling tower's blowdown line is connected to the plant sanitary system. The water pipes are covered with insulation.

Historical Operations

Equipment in Building 559 needing to be cooled receives cooled water from a re-circulating closed loop system. Water is piped through the equipment and then back to the cooling tower. The closed loop system was designed to prevent cross-contamination of the cooling water. During the cooling towers operation the water was treated with the standard chemical for the time. See section below on RCRA/CERCLA constituents for more information on the chemical additives.

The cooling tower basin is currently dry with no visible sludge residue. The basin has an accumulation of dust and debris, which has accumulated since its deactivation in 1990. From the limited-access inspection performed during this HSA, the basin appeared to be intact with no cracks.

Note: Building 560 interviews are documented as part of the Building 559 Cluster interviews.

Current Operational Status

Building 560 has no radiological or chemical postings, and has been inactive since approximately 1990.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos. The cooling tower is constructed with asbestos fiberboard outer walls. The construction of the internal dispersion panels could not be determined from this limited-access inspection. The water pipes are insulated, but it is not known whether the insulation is ACM. No known asbestos surveys exist related to this facility.

Note: SME should evaluate and/or verify this information during the RLC/PDS process. SME may need to review additional documents and perform additional interviews.

D&D RISS Facility Characterization Historical Site Assessment Report

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations Building 560 is not on the RFETS List of Known Be Areas

Summarize any recent Be sampling results No recent Be sampling has been conducted

Note SME should evaluate and/or verify this information during the RLC/PDS process SME may need to review additional documentation and perform additional interviews

Lead

Describe any potential, likely, or known sources of Lead (e g , paint, shielding, etc) Buildings 560 may contain lead-based paints, lead in wiring, and lead solder

Note SME should evaluate and/or verify this information during the RLC/PDS process SME may need to review additional documentation and perform additional interviews

RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e g , chemical storage, waste storage, and processes) Building 560 is not a RCRA permitted unit and has no history of waste storage Process knowledge from other cooling towers on site indicates that the following chemicals may have been used to treat the water

- 1) HTH (R) All Purpose Algaecide Ammonium, Alkyl (C12-C16) Dimethylbenzyl-, Chlorides
- 2) Nalco 2536 Corrosion Inhibitor Sodium Nitrite and Sodium Tetraborate (anhydrous)
- 3) HTH (R) "Mustard" Algaecide Alkyldimethyl Dichloro Benzyl Ammonium Chloride and Copper Triethanolamine Complex

The closed loop portion of the cooling system contained water treated with Ethylene Glycol to prevent freezing

Describe any potential, likely, or known spill locations (and sources, if any) None

Describe methods in which spills were mitigated, if any None

Note SME should evaluate and/or verify this information during the RLC/PDS process SME may need to review additional documentation and perform additional interviews

PCBs

Describe any potential, likely, or known sources of PCBs (e g , light ballasts, paints, equipment, etc) Building 560 may contain PCB-based paints and electrical equipment containing PCBs No light ballasts were observed during this limited access inspection

Describe any potential, likely, or known spill locations (and sources, if any) None

Describe methods in which spills were mitigated, if any None

Note SME should evaluate and/or verify this information during the RLC/PDS process SME may need to review additional documentation and perform additional interviews

D&D RISS Facility Characterization Historical Site Assessment Report

Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations Building 560 in not radiological posted and has no history of radiological contamination

Describe any potential, likely, or known spill locations (e g , known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc) None

Note SME should evaluate and/or verify this information during the RLC/PDS process SME may need to review additional documentation and perform additional interviews

Describe methods in which spills were mitigated, if any None

Describe any potential, likely, or known isotopes of concern (e g , weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc) None

Describe any potential, likely, or known external facility contamination (e g , stack release points, unfiltered ventilation, facility's physical location to known site releases, etc) None

Note SME should evaluate and/or verify this information during the RLC/PDS process SME may need to review additional documentation and perform additional interviews

Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e g , IHSSs, PACs, and UBCs) There are no IHSSs or UBCs associated with this Facility

Note SME should evaluate and/or verify this information during the RLC/PDS process SME may need to review additional documentation and perform additional interviews

Additional Information

Describe any additional information that may be useful during facility characterization (e g , contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc) Building 560 does not have a WSRIC,

References

Provide all sources of information utilized to gather data for facility history (e g , documents, files, interviews) Sources reviewed to complete this HSA were the RFETS Facility list, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases The Building 559 has a Facility Safety Analysis, which includes Building 560 In addition, a facility walkdown and interviews were performed

Waste Volume Estimates and Material Types

Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM	Other Waste
Building 560	325	150	80	0	0	250*	0

* This figure is an estimate

Further Actions

Recommend any further actions, if any (e g , characterization, decontamination, special handling, etc)

Begin the RLC/PDS process

D&D RISS Facility Characterization Historical Site Assessment Report

Note.

This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations. Information contained in this HSA only represents a "snapshot" in time. Subsequent data may be obtained during SME walkdowns and chemical and radiological characterization package preparations, which may conflict with this report. However, this report will not be amended, and the newer data will take precedence over the data in the report. Newer Data will appear in the RLCR/PDSR. SME may need to review additional documentation and perform additional interviews.

Prepared By Doug Bryant / September 2001
Name Date

ATTACHMENT C

Radiological and Chemical Characterization Plans



Rocky Flats Environmental Technology Site

RECONNAISSANCE LEVEL CHARACTERIZATION

RADIOLOGICAL CHARACTERIZATION PLAN

**B560 CLOSURE PROJECT
(B559 Cluster)**

REVISION 0

September 26, 2001

Prepared by: Jeff Ambrose Date 10-3-01
Jeff Ambrose, Radiological Engineer

Reviewed by: Duane Parsons Date 10/3/01
Duane Parsons, Facility Characterization Coordinator

Reviewed by: Paul Miles Date 10/5/01
Paul Miles, Quality Assurance

Approved by: Bob Richardella Date 10/9/01
Bob Richardella, Closure Project Facility Manager

Radionuclide Characterization Plan

(B-560 Cluster)

Notes and Assumptions

- This characterization Plan was prepared in accordance with MAN-077-DDCP, D&D Characterization Protocols (07/26/00), and MAN-127-PDSP, Pre-Demolition Survey Plan for D&D Facilities (02/14/01)
- PDSP Data Quality Objectives were used to develop this characterization plan

Instructions

- 1 Verify characterization activities are on the Plan-of-the-Day (POD)
- 2 Perform a Pre-Evolution Brief and/or Job Task Brief in accordance with the Site Conduct of Operations Manual
- 3 Verify personnel have appropriate training for the applicable tasks they will be performing
- 4 Comply with RWP requirements, if applicable
- 5 Comply with JHA and facility PPE requirements, as applicable
- 6 Inform the Facility Manager, or designee prior to starting characterization activities
- 7 Follow applicable characterization and sampling procedures
- 8 Notify Wackenhut Security (x2444) and the Shift Supervisor (x2914), and verify appropriate safety precautions/requirements are followed prior to accessing facility roofs
- 9 Coordination with the Environmental Restoration Program organization will be required to further characterize underneath facility foundations and slabs prior to removal
- 10 Collect and maintain all characterization paperwork in the Project File(s)
- 11 All radiological surveys shall be conducted in accordance with the sampling and instruction forms included in the B560 Survey Package Number 560-A-001 Sample locations are denoted on scaled maps attached to the survey package

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Radiological Characterization Plan
 E560 (B550 Cluster)

Non-Impacted Areas

Survey Area	Survey Unit	Description	Total m ²	Floor m ²	Scan m ²	TSA	Smears	Media	No Class 1 Areas identified in this characterization unit	Historical Site Assessment and process knowledge indicate no need for this classification
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Non-Impacted Totals			0	0	0	0	0	0	0	0

Class 1 Areas

Survey Area	Survey Unit	Description	Total m ²	Floor m ²	Scan m ²	TSA	Smears	Media	No Class 1 Areas identified in this characterization unit	Historical Site Assessment and process knowledge indicate no need for this classification
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Class 1 Totals			0	0	0	0	0	0	0	0

Class 2 Areas

Survey Area	Survey Unit	Description	Total m ²	Floor m ²	Scan m ²	TSA	Smears	Media	No Class 2 Areas identified in this characterization unit	Historical Site Assessment and process knowledge indicate no need for this classification
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Class 2 Totals			0	0	0	0	0	0	0	0

Class 3 Areas										
A	560-A-001	3	B560	330	80	17	15-random 2-QC	15-random	0	Areas are not expected to contain, or have ever contained, any residual radioactivity greater than the DCGL _w . Historical Site Assessment and process knowledge of this unit provide a high degree of confidence that no individual measurement will exceed the DCGL _w . A 5% scan on surfaces will be biased towards areas of greatest potential for contamination. Scan percentages are justified due to the historical process knowledge of the facility and exterior characterization results of surrounding facilities.
										Due to the inaccessibility of the interior surfaces of B560, 15 additional biased TSA and Smear measurements will be obtained during the demolition phase using the Waste Release Evaluation process
Class 3 Totals				330	80	17	15	15	0	
All Class Areas				330	80	17	15	15	0	

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Rocky Flats Environmental Technology Site

**RECONNAISSANCE LEVEL CHARACTERIZATION/
PRE-DEMOLITION SURVEY**

**CHEMICAL CHARACTERIZATION PLAN
(PACKAGE)**

**559 CLUSTER CLOSURE PROJECT
(Building 560)**

REVISION 0

September 27, 2001

Prepared by: Steve Lappi Date: 10/1/01
Steve Lappi, Industrial Hygiene

Prepared by: Shawn Knapp Date: 10/2/01
Shawn Knapp, Environmental Compliance

Reviewed by: Paul Miles Date: 10/4/01
Paul Miles, Quality Assurance

Reviewed by: Duane Parsons Date: 10/4/01
Duane Parsons, Characterization Coordinator

Approved by: Bob Richardella Date: 10/9/01
Bob Richardella, KH Closure Project Manager

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Instructions:

- 1 Verify characterization activities are on the Plan-of-the-Day (POD)
- 2 Perform a Pre-Evolution Brief and/or Job Task Brief in accordance with the Site Conduct of Operations Manual
- 3 Verify personnel have appropriate training for the applicable tasks they will be performing
- 4 Comply with RWP and Beryllium Work Form (BWF) requirements, if applicable
- 5 Comply with facility PPE requirements, as applicable
- 6 Inform the Facility Manager, or designee prior to starting characterization activities

WARNING

Confined space entry is NOT authorized during the performance of this plan (package)

- 7 Follow applicable characterization and sampling procedures
- 8 Have D&D craft perform the following, as required
 - Lift deck grating and access covers to assist in obtaining samples in trenches, pits & sumps Use forklift with approved lift attachment, as necessary
 - Cut (using sawsall) deck grating and access covers, if necessary, to assist in obtaining samples in trenches, pits & sumps
 - Assist in accessing ventilation ducts for sampling, including removal of blank flanges of ventilation pipes via scaffolding, ladders, or other suitable means
- 9 Notify Wackenhut Security (x2444) and the Shift Supervisor (x2914), and verify appropriate safety precautions/requirements are followed prior to accessing facility roofs
- 10 Coordination with the Environmental Restoration Program organization will be required to further characterize soils around and underneath facility foundations and slabs prior to removal
- 11 Collect and maintain all characterization paperwork in the Characterization Closure Project File(s), and all electronic data in the appropriate D&D RISS subdirectory

ASBESTOS		
Sample Location	Number of Samples	Sample location and justification/rational
560	12	The 560 Cooling Tower is constructed with asbestos fiberboard outer walls No known asbestos surveys exist for this facility The water pipes are insulated with suspect ACM, and biased sampling will be performed on these materials for verification
Total Samples	12	Sample locations will be specified on sample maps for the characterization efforts Samples will be obtained in accordance with PRO-653-ACPR, Asbestos Characterization Procedure, and 40 CFR Part 763, Subpart E

BERYLLIUM		
Sample Location	Number of Samples (smears)	Sample location and justification/rational
560	0	560 is not on the RFETS List of Known Be Areas Based on the 560 Historical Site Assessment Report and Interview Checklists, there is adequate historical and process knowledge to conclude that beryllium was not used or stored in this facility Therefore, no random and/or biased samples are required to delineate potential Be contamination in the 560 Cooling Tower
Total Samples	0	

RCRA/CERCLA CONSTITUENTS		
Sample Location	Number of Samples	Sample location and justification/rational
560	0	Based on the 560 Historical Site Assessment Report, Interview Checklists, and facility walkdowns, no hazardous activities resulting in a release of RCRA/CERCLA constituents occurred in this facility, therefore sampling is not required The chemicals used in the cooling tower are algaecides and corrosion inhibitors that are not classified as RCRA hazardous
Total Samples	0	

PCBs		
Sample Location	Number of Samples	Sample location and justification/rational
560	0	Based on the age of the structure (1960's era), it must be assumed that the paint used on the structure contained PCBs Based on this assumption, no sampling is required This facility will be disposed of as PCB Bulk Product Waste
Total Samples	0	

- PCB ballasts, fluorescent light bulbs, potential mercury switches in thermostats, and mercury vapor light bulbs will be identified and removed prior to demolition

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ATTACHMENT D

Radiological Data Summary and Survey Map

SURVEY UNIT DATA SUMMARY: 560-A-001

Survey Unit Description:

Exterior of the B560 Cooling Tower

Survey Unit 560-A-001 Data Summary

Total Surface Activity Measurements

15	15
Number Required	Number Obtained

MIN	6.9	dpm/100 cm ²
MAX*	84.3	dpm/100 cm ²
MEAN	51.5	dpm/100 cm ²
STD DEV	24.4	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²

Removable Activity Measurements

15	15
Number Required	Number Obtained

MIN	-0.3	dpm/100 cm ²
MAX	11.8	dpm/100 cm ²
MEAN	2.9	dpm/100 cm ²
STD DEV	3.9	dpm/100 cm ²
TRANSURANIC DCGL _w	20	dpm/100 cm ²

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Survey Unit 560-A-001 Total Surface Activity Results

Manufacturer	NE Electra	NE Electra	NE Electra
Model	DP-6	DP-6	DP-6
Instrument ID#	7	8	9
Serial #	4335	4335	1840
Cal Due Date	3/17/02	3/17/02	4/9/02
Analysis Date	10/10/01	10/11/01	10/11/01
Alpha Eff (c/d)	0.216	0.216	0.212
Alpha Bkgd (cpm)	3.3	2.7	1.3
Sample Time (min)	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5
MDC (dpm/100cm ²)	41.2	38.2	29.9

Sample Location Number	Instrument ID#	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm ²)
1	7	15.3	7.3	44.0
2	7	19.3	6.7	62.5
3 *	*	*	*	83.4
4	7	19.3	4.0	62.5
5	8	10.0	5.3	19.4
6	8	11.0	6.0	24.1
7	7	22.0	3.3	75.0
8	7	12.0	4.0	28.7
9	7	22.7	8.7	78.2
10	7	19.3	4.7	62.5
11	7	14.0	2.7	38.0
12	7	15.3	8.7	44.0
13	7	24.0	8.0	84.3
14	7	7.3	6.0	6.9
15 *	*	*	*	59.3
Average LAB				5.8
MIN				6.9
MAX				84.3
MEAN				51.5
SD				24.4
Transuranic DCGL _w				100

14 QC	9	10.7	4.7	31.6
15 QC	9	22.7	3.3	88.2
Average LAB				4.0
MIN				31.6
MAX				88.2
MEAN				59.9
SD				40.0
Transuranic DCGL _w				100

* Due to initial elevated measurement values at survey locations 3 and 15 a nine-point mean investigation was performed. An additional eight 90-second total surface activity measurements were performed within one square meter of each initial elevated measurement location. Both one square meter means of locations 3 and 15 were less than 100 dpm/100cm² with no single total surface activity measurement in excess of 300 dpm/100cm². The one square meter mean values for locations 3 and 15 are reported in the above table. Refer to the attached investigation form on the next page for results of the nine point investigations and mean calculations. All applicable DCGLs and DQOs were met and no further investigation is required.

Survey Unit 560-A-001 Smear Results

Manufacturer:	Eberline
Model:	SAC-4
Instrument ID#:	1
Serial #:	1269
Cal Due Date:	1/18/02
Analysis Date:	10/11/01
Alpha Eff. (c/d):	0.33
Alpha Bkgd (cpm)	0.1
Sample Time (min)	2
Bkgd Time (min)	10
MDC (dpm/100cm²)	7.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	1	0.0	-0.3
2	1	1.0	2.7
3	1	0.0	-0.3
4	1	1.0	2.7
5	1	1.0	2.7
6	1	1.0	2.7
7	1	3.0	8.8
8	1	4.0	11.8
9	1	0.0	-0.3
10	1	3.0	8.8
11	1	1.0	2.7
12	1	0.0	-0.3
13	1	0.0	-0.3
14	1	1.0	2.7
15	1	0.0	-0.3
		MIN	-0.3
		MAX	11.8
		MEAN	2.9
		SD	3.9
		Transuranic	20

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A-001					Building: 560					
Scan Survey/Investigation Documentation Sheet										
						NE Electra Beta				
						Direct (100cm ²)	RCI ID #	Inst ID #	Elevated Audible observed "Y" or "N"	60" Direct (dpm/100cm ²)
3	2	8	N/A	N/A	109 7					
3 1	2	8	N/A	N/A	113 9					
3 2	2	8	N/A	N/A	68 1					
3 3	2	8	N/A	N/A	98 6					
3 4	2	8	N/A	N/A	71 3					
3 5	2	8	N/A	N/A	39 8					
3 6	2	8	N/A	N/A	18 5					
3 7	2	8	N/A	N/A	30 6					
3 8	2	8	N/A	N/A	33 8					
				Min	18 5					
				Mean	64 9					
				Max	113 9					
15	2	8	N/A	N/A	116 2					
15 1	2	8	N/A	N/A	148 2					
15 2	2	8	N/A	N/A	101 9					
15 3	2	8	N/A	N/A	74 1					
15 4	2	8	N/A	N/A	43 1					
15 5	2	8	N/A	N/A	40 3					
15 6	2	8	N/A	N/A	92 6					
15 7	2	8	N/A	N/A	86 6					
15 8	2	8	N/A	N/A	80 1					
				Min	40 3					
				Mean	87 0					
				Max	148 2					
NOTE Refer to the Instrument Data Sheet and Survey Signature Sheet for instrumentation surveyor & approval information										
Results/Comments Investigation TSA measurments taken within 1 m ² of points 3 and 15 No individual TSA exceeded 300 dpm/100 cm ²										

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ATTACHMENT E

Chemical Data Summary And Sample Map

Chemical Data Summary

Table E-1 Asbestos Data Summary, Building 560 Cooling Tower

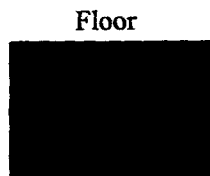
Sample Number	Material Sampled & Location	Analytical Results
560-09262001-214-001	White resin /fibrous plaster TSI on the 560 cooling tower vertical 12 inch line, south side	15% Chrysotile
560-09262001-214-002	White resin/fibrous plaster TSI on the 560 cooling tower vertical 12 inch line, south side	15% Chrysotile
560-09262001-214-003	White resin TSI/black tar paper on the cooling tower vertical 3 inch line, south side	None Detected
560-09262001-214-004	Multiple layer TSI on the 560 cooling tower horizontal 12 inch line, south side	50% Chrysotile, Black fibrous tar layer, All other layers, Non Detected
560-09262001-214-005	Multiple layer TSI on the 560 cooling tower horizontal 12 inch line, east side	All Layers, None Detected
560-09262001-214-006	Multiple layer TSI on the 560 cooling tower horizontal 12 inch line, east side	50% Chrysotile, Black fibrous tar layer, All other layers, None Detected
560-09262001-214-007	Tan/silver wrap over yellow fibrous TSI on the 560 cooling tower 3 inch horizontal line, east side	None Detected
560-09262001-214-008	Tan/silver wrap over yellow fibrous TSI on the 560 cooling tower 3 inch horizontal line, east side	None Detected
560-09262001-214-009	Tan/silver wrap over yellow fibrous TSI on the 560 cooling tower 3 inch horizontal line, south side	None Detected
560-09262001-214-010	White fibrous TSI on the 560 cooling tower 3 inch line elbow, south side	None Detected
560-09262001-214-011	White fibrous TSI on the 560 cooling tower 3 inch line elbow, south side	None Detected
560-09262001-214-012	White fibrous TSI on the 560 cooling tower 3 inch line elbow, south side	None Detected
560-10092001-214-001	White resin/black tar paper TSI on the cooling tower vertical 3 inch line, south side	None Detected
560-10092001-214-002	White resin/black tar paper TSI on the 560 cooling tower vertical 3 inch line, south side	None Detected

PRE-DEMOLITION SURVEY

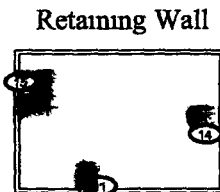
Survey Area A Survey Unit 560-A-001 Type 1
 Building 560
 Survey Unit Description Interior & Exterior
 Total Area 340 sq m Total Floor Area 80 sq m

Scan
Areas

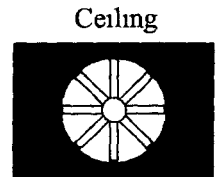
560 Cooling Tower



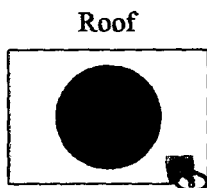
Floor



Retaining Wall



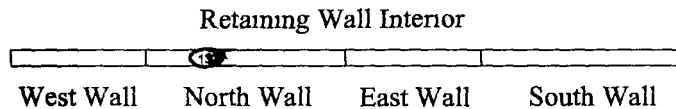
Ceiling



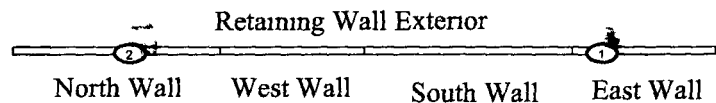
Roof



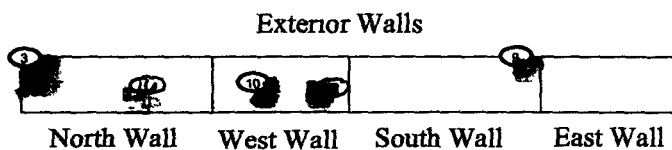
Roof & Fan



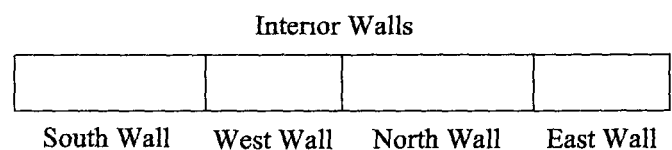
Retaining Wall Interior



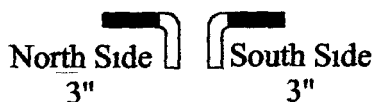
Retaining Wall Exterior



Exterior Walls



Interior Walls



North Side
3"

South Side
3"



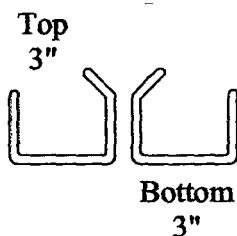
Top
3"

Bottom
3"



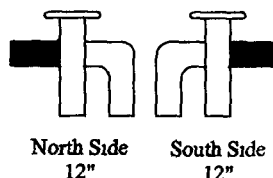
West Side
3"

East Side
3"



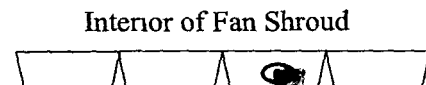
Top
3"

Bottom
3"

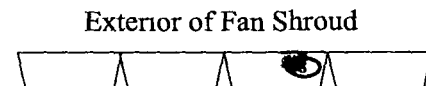


North Side
12"

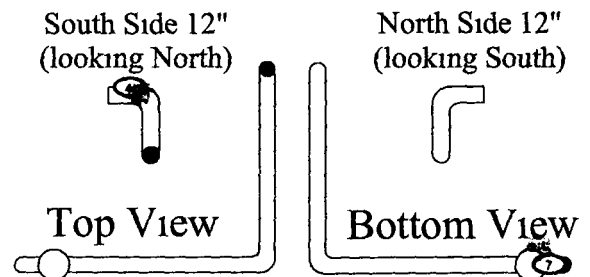
South Side
12"



Interior of Fan Shroud



Exterior of Fan Shroud



South Side 12"
(looking North)

North Side 12"
(looking South)

Top View

Bottom View

SURVEY MAP LEGEND Scan & TSA Location Scan TSA & Sample Location Open/Inaccessible Area Area in Another Survey Unit	Neither the United States Government nor KSCC 1985 Co. nor DynCorp LLC, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Scan Survey Information Survey Instrument ID #(s) 8 RCT ID #(s) 2		0 FEET 30 0 METERS 10 1 inch = 24 feet 1 grid sq = 1 sq m.	U.S. Department of Energy Rocky Flats Environmental Technology Site Prepared by GHS Dept. 303-866-7700 Prepared for DynCorp THE ART OF TECHNOLOGY MAP ID: h2001/01-001A/B260 September 17, 2001
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000-A-001

PAGE 1 OF 1

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ATTACHMENT F

Data Quality Assessment (DQA) Details

DATA QUALITY ASSESSMENT (DQA) – B560 PDSR

INTRODUCTION

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses.

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed, the radiological survey assessment is provided in Table F-1 and asbestos is in F-2. A completeness summary for all results is given in Table F-3. The DQA implements QA guidelines taken from the following MARSSIM sections:

- §4.9, Quality Control
- §8.2, Data Quality Assessment
- §9.0, Quality Assurance & Quality Control
- Appendix E, Assessment Phase of the Data Life Cycle
- Appendix N, Data Validation using Data Descriptors

Consistent with EPA's G-4 DQO process, the radiological survey designs were optimized by checking actual measurement results (acquired during pre-demolition surveys) against model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

No beta/gamma survey designs were implemented for B560 based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Stated differently, based on the well-established suite of actinides historically used at the RFETS, all of these actinides would emit alpha radiation in exceedance of the applicable transuranic DCGLs before other DCGLs would be exceeded for their respective Uranium species – Technical Basis Document 00162, Rev. 0, *Technical Justification for Types of Surveys Performed During Reconnaissance Level Characterization Surveys and Pre-Demolition Surveys in RISS Facilities*, corroborates the use of this approach.

This report and the supporting quality records will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of the report's approval. All relevant Quality records supporting this report are maintained in a Project File. All radiological data are organized into Survey Packages, which correlate to unique Survey Areas/Units. Chemical data are organized by RIN (Report Identification Number), which are traceable to sample numbers and locations.

SUMMARY

In summary, the data presented in this report have been verified and validated relative to quality requirements and the project decisions as stated in the original DQOs. All data are satisfactory for the decisions made. All media surveyed and sampled yielded results less than their associated action levels, and all with acceptable uncertainties. Therefore, the Survey Units and structures in question meet the unrestricted-release criteria with the confidences stated in this section and the report in total.

Table F-1 V&V of Radiological Surveys

V&V CRITERIA, RADIOLOGICAL SURVEYS		K-H RSP 1600 Series MARSSIM (NUREG-1575)			
QUALITY REQUIREMENTS					
Parameters		Measure	frequency	COMMENTS	
ACCURACY	initial calibrations	90%<x<110%	≥1	multi-point calibration through the measurement range encountered in the field, programmatic records	
	daily source checks	80%<x<120%	≥1/day	None	
	local area background	Field	< 8 cpm	≥1/day	all local area backgrounds were within expected ranges (i.e., no elevated anomalies)
PRECISION	field duplicate measurements for TSA	≥5% of real survey points	≥10% of reads	None	
REPRESENTATIVENESS	MARSSIM gridding methodology (Survey Unit 560-A-001)	statistical and biased	NA	Random w/ statistical confidence	
	Survey Maps	±1meter	NA	Random and biased measurement locations controlled/mapped to ±1m	
	Controlling Documents (Characterization Pkg, RSPs)	Qualitative	NA	see original Characterization Package (planning document) for field/sampling procedures, thorough documentation of the planning, sampling/analysis process, and data reduction into formats	
COMPARABILITY	units of measure	dpm/100cm ²	NA	use of standardized engineering units in the reporting of measurement results	
COMPLETENESS	Plan vs Actual surveys	>95%	NA	see Table H-8 for details	
	usable results vs unusable	>95%		derivation of final values (traceability) to initially elevated readings >DCGLw is not depicted in data reduction (sp the spreadsheet “Rad Data Summary – 560-A-001 rev1.xls”	
SENSITIVITY	detection limits	TSA ≤50 dpm/100cm ² RA ≤10 dpm/100cm ²	all measures	MDAs ≤ ½ DCGLw per MARSSIM guidelines	

Table F-2 V&V of Chemical Results-Asbestos

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
ASBESTOS	METHOD EPA 600/R-93/116	LAB	Reservoirs Environmental, Inc	
		RIN	01D1073	
	QUALITY REQUIREMENT	Measure	Frequency	
ACCURACY		Below detectable amounts	≥1	semi-quantitative, per (microscopic) visual estimation
PRECISION		all below detectable amounts	≥ samples	repeatability established within the sample set
REPRESENTATIVENESS	COC	Qualitative	NA	Chain-of-Custody intact completed paperwork, containers w/ custody seals
	Hold times/preservation	Qualitative	NA	Not applicable
	Sample Maps	Quantitative	Per area	None
	Controlling Documents (Plans, Procedures, etc)	Qualitative	NA	see Table F-3 for analytical methods, original Characterization Package (planning document) for field/sampling procedures, thorough documentation of the planning, sampling/analysis process, and data reduction into formats
COMPARABILITY		% by bulk volume	NA	use of standardized engineering units in the reporting of measurement results
COMPLETENESS	Plan vs Actual samples Usable results vs unusable	Qualitative	NA	see Table F-3, final number of samples at Certified Inspector's discretion
SENSITIVITY	Detection limits	<1% by volume	all measures	

Table F-3. Sampling & Survey Completeness Summary – Building 560 (Cooling Towers) PDS

ANALYTE	# Samples Required (incl. Media; Real & QC Samples)	# Taken (Real & QC Samples)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos ^A • Bldg 560	(biased/real) 12	(no QC) 14	ACM present in selected areas	40 CFR 763.86, 5 CCR 1001-10, EPA 600/R-93/116 RIN 01D1073 ("No ACM" is <1% by volume)
Radiological Surveys • Survey Unit 560-A-001	15 TSA & 15 Smears (random) 2 QC TSA 5% Scan	same	>95% confidence, no contamination present	No results above DCGL _w action level (20 dpm/100cm ² removable, 100 dpm/100cm ² [average per 1m ²]) (Averaging of values for 2 initial readings that exceeded DCGL _w , for TSA, should be reflected and reduced in the associated spreadsheet "Rad Data Summary – 560-A- 001 rev 1.xls")

^A # of samples required is estimate only, based on miscellaneous material types, final # of samples at discretion of IH

RLC/PDS CHEMICAL CHARACTERIZATION PLAN (PACKAGE)

559 Cluster: (Buildings 560)

Notes and Assumptions:

- This characterization package was prepared in accordance with MAN-077-DDCP, D&D Characterization Protocols, April 23, 2001, and MAN-127-PDSP, Pre-Demolition Survey Plan for D&D Facilities, April 23, 2001
- PDSP Data Quality Objectives were used to develop this characterization package
- Demolition debris will be disposed of as PCB Bulk Product Waste, therefore, painted concrete surfaces will not be sampled for PCBs
- Lead sampling is not required in the 559 Cluster All paint will remain a part of the infrastructure during demolition and therefore does not require sampling per Environmental Waste Compliance Guidance No 27, Lead Based Paint (LBP) and LBP Debris Disposal Sampling for lead for IH requirements will be at the discretion of the demolition contractor
- The 560 Cooling Tower is constructed with asbestos fiberboard outer walls (transite) Additional suspect asbestos containing materials (ACM) were identified during the walk-down These materials include various forms of thermal system insulation (TSI) Biased sampling will be performed on these materials for ACM verification